veloping branches in the lower axils of leaves, from roots, &c. Indeed, many weeds are almost destitute of arrangements for the distribution of seeds. One of these is the common ragweed, *Ambrosia trifida.* In this I noted an occurrence, properly belonging to the study of Natural Philosophy, but which may interest even the botanist. The akenes of this plant have a stout central process, $\frac{1}{5}$ the length of the seed, surrounded at the base by five slight protuberances. On a clear morning, when the fields are covered with hoar-frost, go out into the fields in which this plant grew last summer. Wherever there is a seed exposed you find 5 or 6 strands of ice attached to these processes, sometimes separate but oftener in contact with one another, resembling asbestos in the arrangement of the "fibers" of ice. These, after making various contortions, resembling locks of hair, reach a length of 1½ to 3 inches. During winter season the akenes are mostly half-buried by the earthy matter around them, but in the fall they lie loose on the ground. Now for our application to botany. The seeds being quite heavy generally are carried but a short distance from the stem; but when attached to these strands of ice, they are carried away by the winds, rolling over the ground; or the feet of animals in striking the ice —which always rises above the ground, often nearly perpendicular —propel the seed with the ice; and most frequently of all, becoming by this means attached to leaves, light twigs, &c., they are carried by these for short distances, which during the entire winter season, may amount to a considerable distance, for a plant presenting no other facilities.

Why do not other seeds, as well as our common ragweed, have these curls of ice? Or have they been noticed elsewhere? No doubt this plant offers peculiar facilities in this direction. The seeds present an extraordinary amount of surface by means of these processes, radiation of heat being more advanced here, they offer the first attachment for the dew, which precipitated on the seeds, forms the curls of ice, while at the same time the processes give direction to the strands thus formed, and instead of an irregular mass of ice we have "ice-curls."—AUG. F. FOERSTE, *Dayton*, *Ohio.*

Depauperate Rudbeckia.—An interesting instance of the change which may be effected in the habit and growth of a plant, came to my notice last fall. One day while out walking, I came across a specimen of *Rudbeckia hirta*, L., which was to me a curiosity. The leaves were all radical, and the solitary flower was on a veritable scape, leafless and bractless. The leaves and flower were of the typical *R. hirta*, but instead of the plant being tall and branched as it is usually, it was only two inches high. The next week my brother found another specimen of the same description. This latter was a little taller, being about six inches high to the top of the scape, but all the leaves were radical and the scape was leafless. This is an interesting instance of the way in which a

long period of hot and dry weather can reduce a tall branching plant, to a low branchless one, and may show under what influences plants may acquire the leafless scapes and radical leaves which are characteristic of so many species.—Jos. F. James, *Cincinnati, Ohio.*

Proterandry in Amaryllis reginæ.—The species here named is now occasionally cultivated from South America as a house plant, for which purpose it possesses many desirable characteristics. The large crimson-red, nodding flowers exhibit proterandry in a manner easily observed. The stamens are in two sets of three each, the outer being somewhat shorter than the inner. They are all nearly straight at first but soon begin to curve upward.

The anthers are versatile, and when first appearing are ¾ of an inch in length. From six to ten hours after the flower opens the dehiscence of the anthers takes place by a gradual splitting open on each side, the valves rolling up so as to hide their external surface completely from view; or in other words the anther is turned inside out. At the same time the valves become fluted like a ruffle thereby shortening the anther so that when the dehiscence is complete the anther is only about 3-16 of an inch long. The dehiscence takes place in the short stamens about four or five hours before it does in the long ones. The pollen is very abundant, forming nearly one-half the bulk of the anther. The styles of the three-celled ovary are united into one, with a three-lobed stigma. During the dehiscence of the anthers the stigma remains closed, and is turned downward away from the anthers, thus preventing any pollen from coming in contact with it. After about twenty-four hours the style curves upwards, and the lobes of the stigma turn back, or open, and are ready to receive the pollen. This, however, must now come from a fresh anther of another flower. From the structure of the flower, and the character of the pollen it is well nigh impossible that the latter could be brought to the stigma by the wind. No doubt, therefore, this Amaryllis in its native region is wholly dependent for its fertilization upon some insect, probably some moth with a long proboscis. To this end a liberal supply of nectar is secreted at the bottom of the perianth.—J. Troop, *Botanical Laboratory, Ithaca, N. Y.*

Grape Mildew.—In the Gazette for March I stated that the conidia of *Peronospora viticola* were not known to occur on the flowers and young berries of the grape in this country. The remark is untrue as far as the Western States is concerned, for in the Transactions of the St. Louis Academy of Science of Sept. 16, 1861, Dr. Engelmann mentions that in Missouri the fungus appears in June, and on the pedicels and young berries when they are of the size of small peas or smaller, although he had never seen it on full grown berries. The early occurrence of the fungus in Missouri